

### ABSTRACT OF THE DISCLOSURE

## METHODS FOR CONDUCTING METABOLIC ANALYSES

The present invention provides methods and apparatus for purifying metabolites of interest and conducting metabolic analyses. The methods generally involve determining metabolic flux values for a plurality of target analytes by monitoring the relative isotope abundance of a stable isotope in a substrate labeled with the stable isotope and/or one or more target metabolites formed through metabolism of the labeled substrate. Certain methods utilize multiple electrophoretic methods to separate the target analytes from other components within the sample being analyzed. The methods can be used in a variety of applications including screens to identify metabolites that are correlated with certain diseases and diagnostic screens for identifying individuals having, or susceptible to, a disease.

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